



Amendments to the specification

Title

EXHAUST GAS TREATING ~~METHOD AND~~ APPARATUS THEREFOR, AND VEHICLE EQUIPPED WITH THE APPARATUS

Page 1, line 1-3,

FIELD OF THE INVENTION

This invention relates to ~~a method and~~ an apparatus for treating exhaust gas and a vehicle equipped with the apparatus.

Page 2, line 15-19.

In a proposal, the carbon-containing particles in the exhaust gas are used to remove the nitrogen oxides and both of them are expected to remove simultaneously. But, a solid catalyst is used in the process and the solid carbon-containing particles can not be satisfactory captured and reacted, ~~and the decrease in the nitrogen oxides is insufficient, too.~~

Page 2, line 20-27,

DISCLOSURE OF THE INVENTION

An object of the invention is to provide ~~a method and~~ an apparatus treating an exhaust gas by removing at least one of pollutants of carbon-containing particles and nitrogen oxides in the exhaust gas without consumption of materials which have economical or environmental problems, in no need of any complicated controlling mechanism and at a relatively low temperature. Further, another object of the invention is to provide a vehicle equipped with the apparatus.

Page 2, line 28-30,

In the invention, the carbon-containing particle means generally particulate, smoke(SM), soot, carbon, particle, etc. Its ~~componen-t~~ component comprises solid carbon, unburned fuel, lubricating oil, sulfates combined water and the like.

Page 4, line 6, insert the next new paragraph after the paragraph about Fig 9 inserted by the preliminary amendment of July 3, 2001.

Fig. 10 is a plan view of another combination of a reaction zone device and

an after-treating device for carrying out the invention.

Page 9, line 14-24 .

The reaction zone may be made up at least one step in series or parallels. and if necessary, after treating device may be connected after the reaction device. The function of the after treating device is to treat the remains of the mist and/or pollutants from the reaction zone device. For example, the same structure of said reaction zone device may be used as the after treating device with or without water as a capturing an after-treating medium and/or a capturing zone with solid carbon like char coal, coke and/or active carbon, if necessary, in the presence of known catalyst promoting the reaction of nitrogen oxides with the carbon, for example, alkali metals like potassium, copper cerium, vanadium, molybdenum, etc and their compounds. As another example, the NO_x storage-reduction three way catalyst system may be used for treating the remaining nitrogen oxides

Page 13, line 27-Page 14, line 7 .

Fig.8 shows a schematic plan view of a combination of the reaction zone device and the after-treating device ~~which can capture mist~~. The exhaust gas passed through the reaction zone device 5 and, if necessary, cooled with an exhaust gas cooler 25 flow into the after-treating device 6. The after-treating device 6 can be the same form of the reaction zone device 5. When water is used as an after-treating medium, water ~~Water~~ is introduced continuously or intermittently from a storage tank 23 with a conduit 33, when water is used as a capturing medium of the mist. The introducing position of the capturing medium like water can be allowed any of the upper part 38 or the lower part of the capturing zone 36, the pool 39, and the part between the exhaust gas inlet 34 and the exhaust gas blow nozzle 35. The mist-including water which captured the mist in the pool 39 can be sent continuously or intermittently to the reaction zone device 5 based on the information on the liquid surface sensor 20, if necessary, the content of the pool 39 can send to an intermediate tank 24, and then to the reaction zone device with a pump(not illustrated) or pressurized air via a pressurized air valve 30 and the introducing position is the same case of the device 6. The after-treated exhaust gas is emitted via the exhaust gas outlet 37. When solid carbon is used as an after-treating medium, the solid carbon can be packed in the capturing zone 10 of the after-treating device 6.

Page 14, line 7, after the paragraph about Fig 9 inserted by the preliminary amendment of July 3, 2001.

~~These~~ The water using systems contribute to provide for emergencies of the exhaust gas treating system and prevent for solidifying the liquid-including substance in the end of operations, thereby securing the ability of treating the exhaust gas with the liquid-including substance at the resuming of operation by water introduction.

Page 14, line 11, insert the next new paragraph.

Fig 10 shows an another plan view of combination of a reaction zone device and an after-treating device with solid carbon, where the after-treating device 6 packing solid carbon as an after-treating medium is set to the downstream of the reaction zone device 5, if necessary, with a water feeding system like Fig 9 and water is introduced by a conduit 33 from the system..